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ABSTRACT

This document is a brochure to guide young children and their parents as they tour a display of glass art works from the Corning Museum, exhibited at the National Gallery of Art, Washington, D.C. Questions are posed about individual pieces and the exhibit in general. Activities for children to do at home also are suggested.
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The Art of Glass

Objects from The Corning

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help you understand some of the beautiful objects
through the exhibition. Please remember not to touch any
booklet there are some ideas for projects you can

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Do you see the display that explains how glass is made, colored, and shaped?
Take a few minutes to read the panels and look at the pictures before you enter the exhibition itself.

The art of making glass is very old, indeed. The Egyptians had learned how to make glass almost 3,500 years ago.

We almost always think of glass and light together. Have you seen "sun-catcher" ornaments in a window? Or prisms of glass turning sunlight into rainbows? While glass sometimes looks as delicate as a snowflake or soap bubble, it can also be strong and rugged enough to be used in making furniture or buildings. In fact, the people of ancient Greece described glass as "poured stone." The Greeks took the word *hyalos* (HEE'-AH-LOHS), which originally meant stone, and used it to talk about glass.

The beauty of glass comes from its contrasting qualities. Glass can look fragile and be strong, or look light and be heavy, all at the same time.

Let's keep these questions in mind when we go through the exhibition.

Does a glass object look delicate or unbreakable?

Is it transparent (clear; light shines through easily)?

Translucent (some light comes through)?

Opaque (cloudy; light does not come through)?

Is the glass colorless, striped, speckled, or a solid color?

Can you tell how the artist colored the glass?

Let's start on the left in the first gallery.



PERFUME BOTTLE (no. 1)

core formed

This is one of the oldest works of art in the exhibition.
It was made in Egypt almost 3,500 years ago.

What words on the label for this perfume bottle
describe the way it was made?

The words *core formed*.

Can you imagine how the artist worked to **form** the
bottle around a central **core**?

The artist first made a clay model in the exact shape he wanted the bottle to be.

Then he coated the model with molten blue glass until the form was complete. *Molten glass* is glass that has been melted at a high temperature. It is a very hot, thick liquid.

The artist then decorated the perfume bottle with yellow, white, and dark blue threads of hot glass. These glass threads stuck easily to the still-warm glass. Finally, the bottle was cooled v-e-r-y slowly, or *annealed*, so that the glass would not crack. Glass becomes hard and brittle when it cools.

When the glass was hard, the clay core was dug out of the center of the bottle.

In the same case is the **VASE** from Syria (no. 5)
cast and cut

Vases and other vessels could also be carved directly from blocks of cold, hardened glass. The label for this vase describes another way of making glass.

How do you think a **cast-and-cut** vase is made?

Molten glass is "cast" (poured into a mold and cooled). When the glass is cold and the mold has been removed, the artist "cuts" or carves the shape he wants.

Compare the core-formed vase to the cast-and-cut vase.

Does light shine through either object?

Are the vases *transparent* or *opaque*?

Which vase looks more delicate to you?

How would you use the word "light" in describing each vase?



Can you find the cameo glass cup in the case behind you?

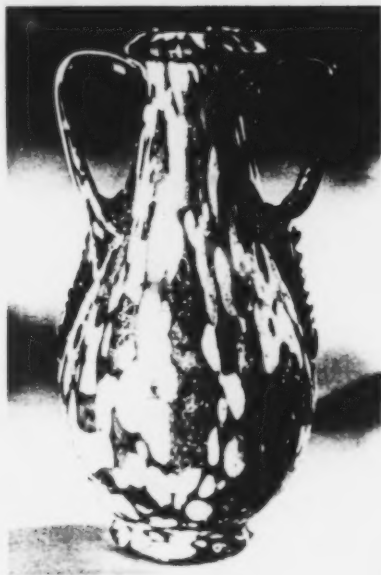
MORGAN CUP (no. 9)



This cameo cup was made 2,000 years ago. **Cameos** are made from stones, shells, or blocks of glass that have layers of different colors. The picture is carved out of the top layer, permitting the bottom layer to show through and become the background. Cameos were used for jewelry as well as for vessels.

Before carving this cup, the artist first had to make his block of **layered glass**. It is difficult to make a block that has different-colored layers. Not all colors of glass cool and harden at the same rate; bubbles and cracks can form, which would ruin the block for carving.

Look on the wall opposite the entrance and find the blown and dappled vase.



VASE (no. 14)

While many artists continued to carve beautiful objects from blocks of cold glass, others invented new ways to work with molten glass. Around 50 B.C. artists learned how to blow glass. They dipped the end of a hollow iron pipe into hot, liquid glass and blew it into a rounded form, just the way you and I might use a straw and soapsuds to blow a bubble.

This vase is made of **blown glass**. Like the *Cameo Glass Cup* it was made in ancient Rome. The word *dappled* describes the spots of color. How do you suppose the colors got this way?

Imagine painting dots on a balloon and then inflating the balloon. The dots would get larger and change shape, wouldn't they?

While still hot, the blue vase was rolled in chips of red, yellow, and white glass. Then the vase was reheated. The artist blew into it again and the colored chips melted and st-r-e-tch-ed.

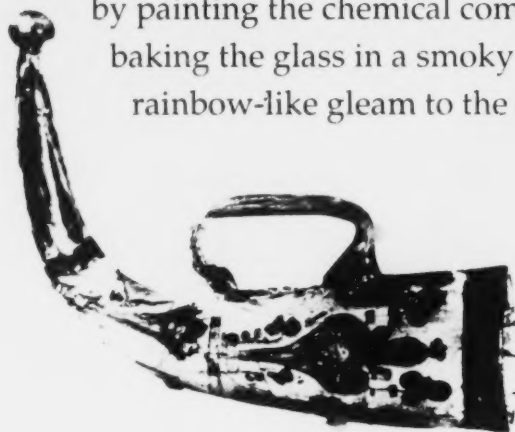
So far we have talked primarily about ways to form a glass vessel. Can you name some of the techniques?

core-formed, cast glass, blown glass

In the next gallery let's look for ways artists used color to *decorate* the objects they made.

DRINKING HORN (no. 30)

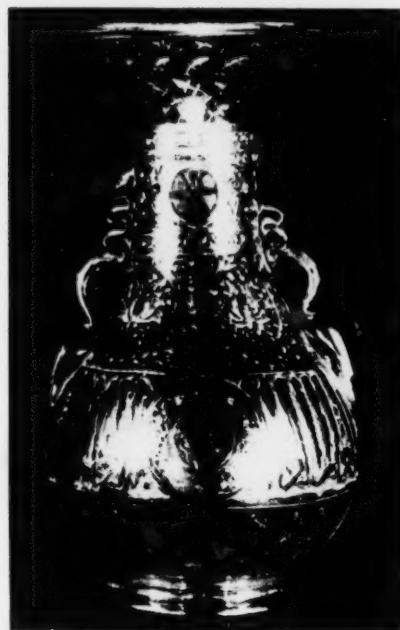
The luster-glass horn was made for drinking. The Egyptians made **luster glass** by painting the chemical compound silver sulphide on glass and then baking the glass in a smoky furnace. The chemical imparts a metallic, rainbow-like gleam to the surface.



Does the light reflecting from the surface of the drinking horn remind you of anything? Perhaps light dancing on water? What sorts of things do *you* imagine?

VASE (no. 32)

This glass vase has been **painted**. It is decorated with fish, flowers, and circles and also the Arabic words *Al-'alim* (AL-AH-LEEM'), which mean "the wise." Fish were signs of good luck in Syria. The circles on the neck of the vase, called medallions, contain lotus flowers, which grew in China but not in Syria. The artist might have seen a lotus flower in a painting or embroidered on a robe that came to Syria from China.



In the next gallery, let's find the stained-glass panel.

MARRIAGE COAT-OF-ARMS

leaded stained glass

Have you ever experienced the magic of light passing through the thousands of pieces of stained glass that are in some church and synagogue windows? Color in **stained glass** results from adding minerals or other substances to the glass mixture while it is hot and in liquid form. The mineral copper will make green glass. Cobalt produces a strong, bright blue. Particles of gold will turn glass a ruby red.



BOTTLE (no. 57)

blown with diamond-point engraving

Another way to decorate glass windows, plates, or vessels is to scratch or **engrave** designs on them. For example the artist Sebastiaan Boers used a tool with a diamond tip to “draw” the design on this glass bottle. Boers was a schoolteacher in Holland three hundred years ago. He must have taught handwriting because this bottle is covered with the loops and arabesques that children learned in penmanship class.

Most of the glass objects we have looked at so far have been containers of one kind or another. Which artwork was *not* a vessel?

If you said the stained-glass panel, you are right.

Go into the next gallery and turn left to find the table.

TABLE (no. 81)

Glass is so strong that it has even been used to make furniture, like this table. It was made in Russia about two hundred years ago.

Ormolu (OR'-MEH-LOO) is the golden metalwork that decorates this table. Do you think these enormous slabs were made out of *blown glass*, or was molten glass *cast* in molds and then carved?

This artist used the same sorts of techniques employed in the cast-and-cut vase.



The octagonal tabletop is blue and the pedestal is amber, a kind of dark yellow. The base, or plinth, is also amber. The amber color of the plinth is dark because the glass is very thick.

How many sides does an octagon have? (8 sides) *Octa* comes from Greek and means eight. Does the pedestal that holds up the tabletop remind you of a column on a building? Does it look strong?

Do you think it would be easy to make a piece of glass this large? Why?

Did you remember that bubbles and other flaws can be a problem? The glass mixture would have to be melted very carefully so that the color would not be "streaky." You also should remember that glass must be *annealed*, or cooled very slowly, or it will crack. It is extremely difficult to get a piece of glass this large to cool slowly all the way through.

In the next gallery find the goblet on the left wall.

GOBLET (no. 65)

blown lead glass

As soon as people discovered how to make glass, many of them tried to make it look like rock crystal, a transparent quartz stone that is absolutely clear. Craftsmen discovered during the seventeenth century that adding lead oxide to the hot mixture would make glass that was clear, strong, and hard. They named this kind of glass **crystal** after rock crystal. Do you remember another kind of glass we have seen that was used as a gemstone? The cameo. This goblet was blown from crystal.



Compared with the table and with the vessels we have already seen, this goblet is so plain and so simple that it might not look as "important" as the other objects. But let's look at it with our "educated" eyes.

First of all, we see how exquisitely clear the glass is. There are no flaws or streaks of color in it. The shape of the goblet has good *proportion*: that means the different parts of the goblet are arranged in a pleasing way. The parts are in *balance*. The top of the bowl is about the same width as the base, while the height of the bowl is about the same height as the stem and base combined.

What else looks special to you about this goblet?

Do you see the air bubble suspended in the middle of the stem?

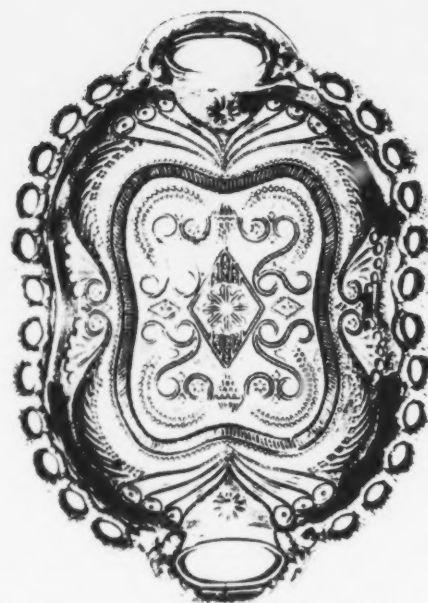
How about the shape of the stem itself and the way it "echoes" the curve of both the bowl and the base?

In the next gallery find the pressed-glass cake plate.

CAKE PLATE (no. 89)

So far, each object we have looked at was made by hand. About a hundred years ago machines were invented that could make things out of glass. Hot glass was poured into molds, and machines stamped or **pressed** the glass into trays, bowls, doorknobs, or other objects.

The *Pressed-Glass Cake Plate* is from Sandwich, Massachusetts. Even though this fancy plate looks as if it took many hours to carve, it was made by machine and not by hand.



All of the works of art we have looked at so far were intended to be useful in some way. Many modern artists working in glass are interested only in how their sculptures "look," and do not intend for them to have any practical purpose. We can find examples of this kind of glass art in the last gallery.



MACCHIA SEA FORM GROUP (no. 107)

Do you think that Dale Chihuly's glass sculpture is blown from hot glass or carved from cold glass? It is made from blown glass.

Take a moment to look carefully at the colors in *Macchia Sea Form Group*. Do you see the way the glass is "striped"? Are the colors *transparent* (clear) or *opaque* (cloudy)?

Activities

Below are some suggestions for activities you can do at home.

1. Create your own stained-glass window. Draw a design on a large sheet of plain or black paper. (Your design can be simple, like a bird or flower; it can be a complicated picture; or it can be an abstract arrangement of shapes.) Cut out the main areas of your design, but be sure to leave thick outlines. Fill the spaces by gluing flat pieces of clear plastic wrap, colored tissue paper, or colored plastic to the outlines. (Candy wrappers and the packaging from toys can be good sources of colored plastic!) Hang your completed work in a window and watch how the design changes with the light!
2. Make a list of how many ways glass might be used in your home or your community. What is the most imaginative use for glass you have ever heard? (Hint: don't forget about fairy tales.)
3. Create a *cameo*. Take pieces of two different colors of clay. Roll them out flat and put one on top of the other. Using your fingers or a stick, carve away at the top layer. Create a pattern out of the top layer of clay that contrasts with the bottom color.
4. Experiment with colored plastic to create darker colors and new colors. Hold up one sheet of colored transparent plastic to the light and look at its color. Add one or two more pieces of the same color and see how the color gets darker. Use different colors together and discover what new colors you can make.

Thank you for visiting the National Gallery of Art. Come back soon!

This family guide was written by Ellen Cutler for the Department of Teacher and School Programs, Education Division, and produced by the Editors Office, National Gallery of Art.
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